

## CLAIMS:

1. Communication system comprising a plurality of terminals which are connected to a network switch via an access network, the access network comprising an access node coupled to the terminals via a transmission network, the access node further being coupled to the network switch, characterized in that the access node comprises an access node switch and a plurality of network control elements, in that the access node switch is coupled to the network switch and to the plurality of network control elements, in that the transmission network comprises a plurality of sub-networks, and in that the network control elements are coupled to the plurality of sub-networks.
2. Communication system according to claim 1, characterized in that the network control elements comprise a network control switch and a plurality of channel cluster modules, in that the network control switch is coupled to the access node switch and to the channel cluster modules, and in that the channel cluster modules are coupled to the sub-network corresponding to the network control node.
3. Communication system according to claim 2, characterized in that the channel cluster modules comprise at least one downstream channel module.
4. Communication system according to claim 3, characterized in that the channel cluster module comprises an upstream channel module.
5. Communication system according to one of the claims 1, ~~2, 3 or 4~~, characterized in that the terminals comprises signaling means for exchanging network layer control information with the network switch.
6. Communication system according to one of the claims 1, ~~2, 3 or 4~~, characterized in that the network switch comprises proxy signaling means for deriving network layer control information from session layer and/or transport layer information exchanged between a terminal and the network switch.

7. Access node coupled being connectable to a transmission network, and to a network switch, characterized in that the access node comprises an access node switch being coupled to a plurality of network control elements, in that the access node switch is connectable to the network switch and in that the network control elements are connectable to a plurality of sub-networks.

8. Access node according to claim 7, characterized in that the network control elements comprise a network control switch and a plurality of channel cluster modules, in that the network control node router is coupled to the access node router and to the channel cluster modules, and in that the channel cluster modules are connectable to a sub-network corresponding to the network control node.